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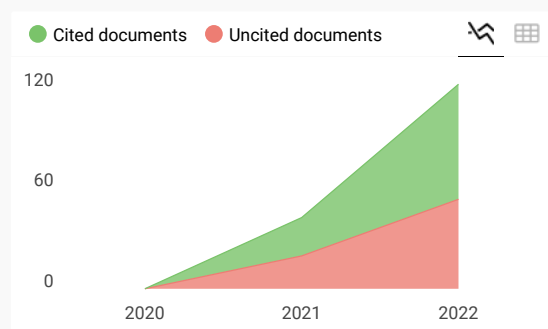
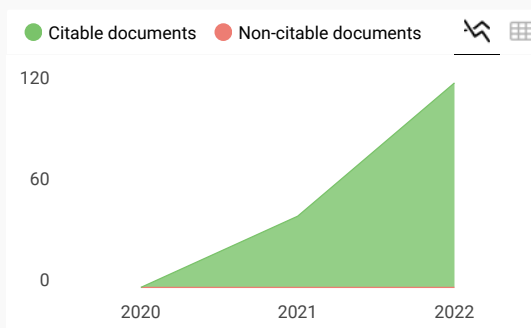
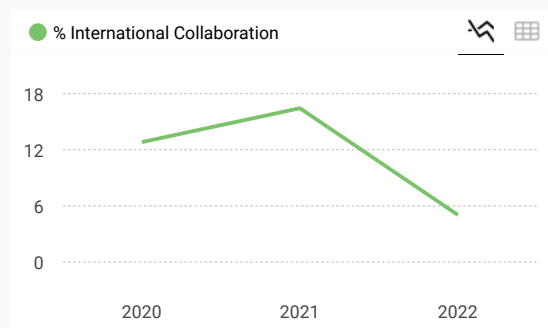
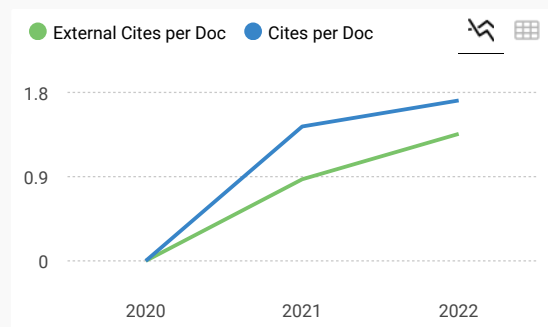
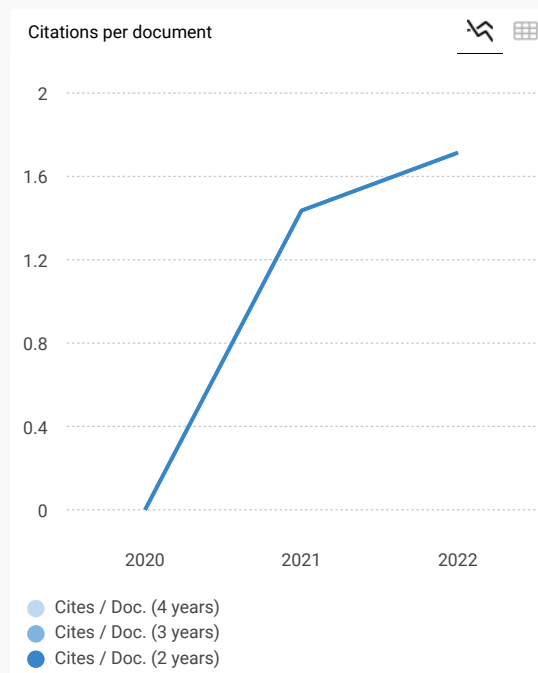
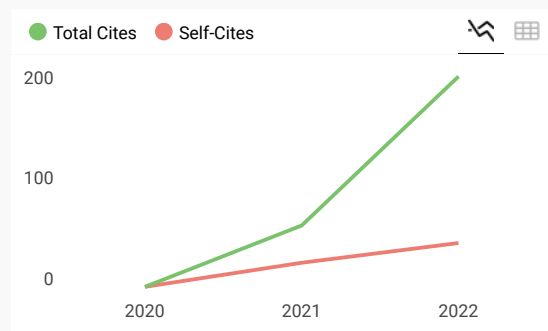
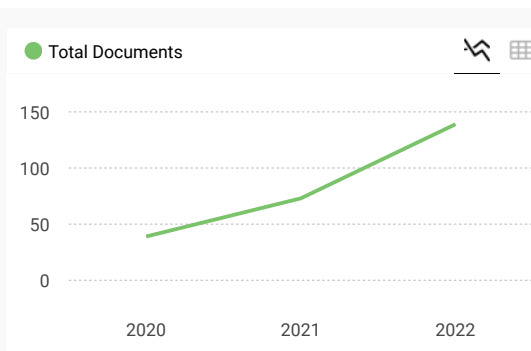
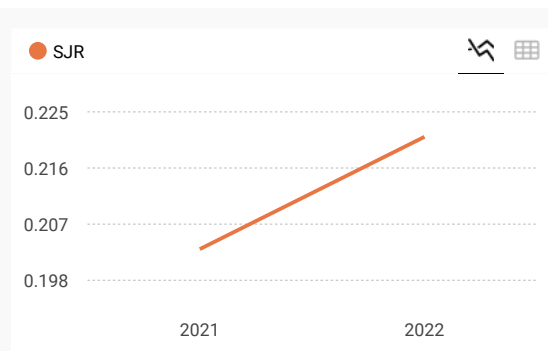
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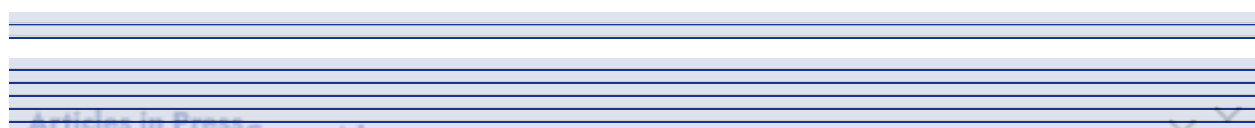
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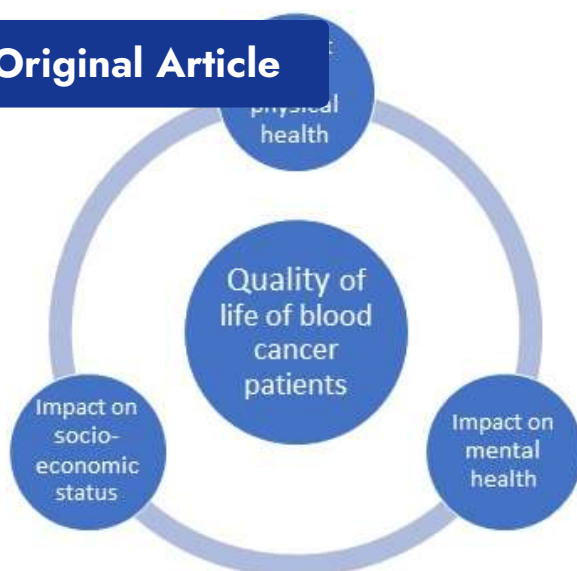


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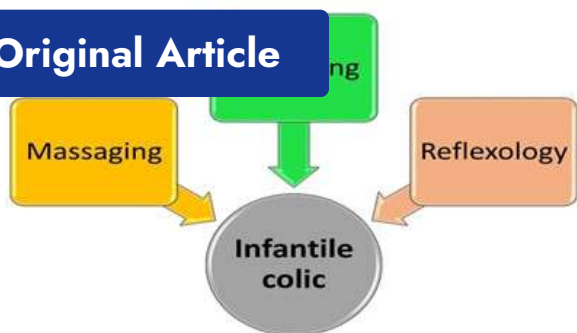
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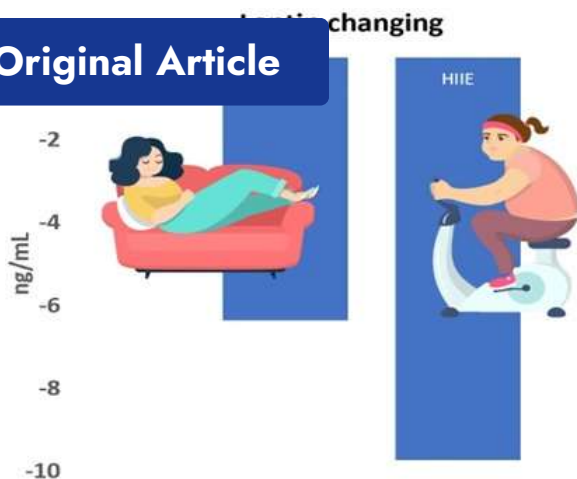
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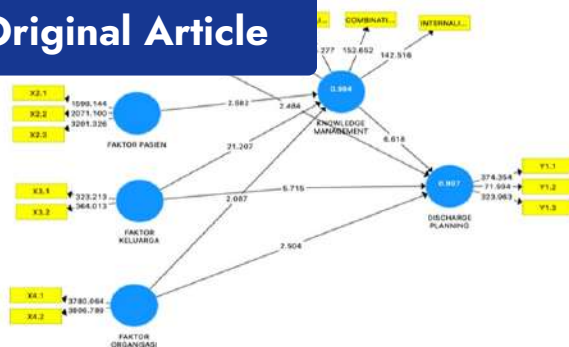
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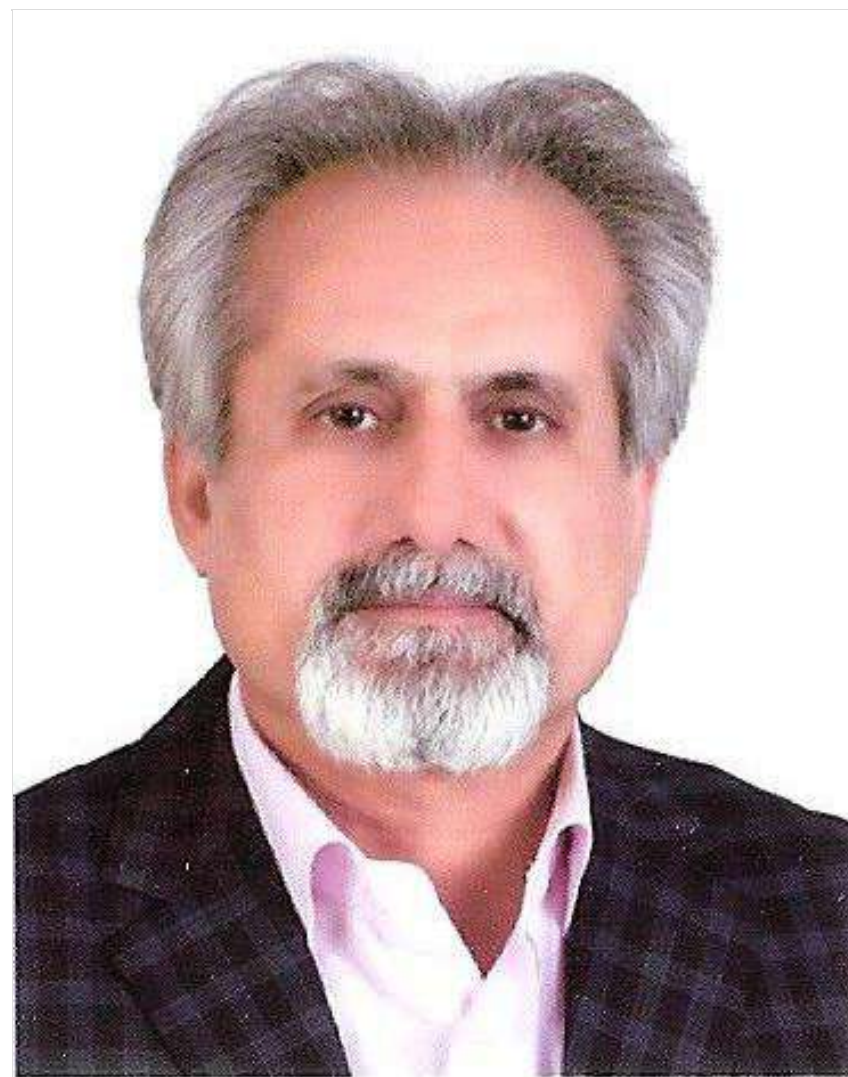


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Original Article

Nurse Performance and Influence Factors in Discharge Planning Based on Knowledge Management SECI Model in Stroke Patients

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ABSTRACT

Background: Implementation of discharge planning was found to be unsystematic and structured in stroke patients, resulting in gaps in knowledge transfer and knowledge between nurses, patients, and families regarding discharge planning directives. Discharge planning based on the Knowledge management SECI model is expected to overcome information and knowledge gaps in stroke patients. This study aims to analyze the influence of nurse factors, family factors, patient factors, and organizational factors on the SECI Model knowledge management-based discharge planning in Jombang Regency, Indonesia.

Design and method: This research was conducted with a cross-sectional analytic study design. A sample of 133 stroke unit nurses at Jombang District Hospital, Ploso Hospital, and Jombang Hospital, was then analyzed and interpreted to test the model with SEM-PLS.

Results: Nurse factors influence discharge planning (t-statistic 2.484 > 1.96 and p-value 0.014 <0.05). Patient factors influence knowledge management (t-statistic 2.582 > 1.96 and p-value 0.011 <0.05). Family factors influence knowledge management and discharge planning (t-statistic 21.207 > 1.96 and p-value 0.000 <0.05). Organizational factors influence knowledge management and discharge planning (t-statistic 2.504 > 1.96 and p-value 0.013 <0.05). Knowledge management influences discharge planning (t-statistic 6.618 > 1.96 and p-value 0.000 <0.05).

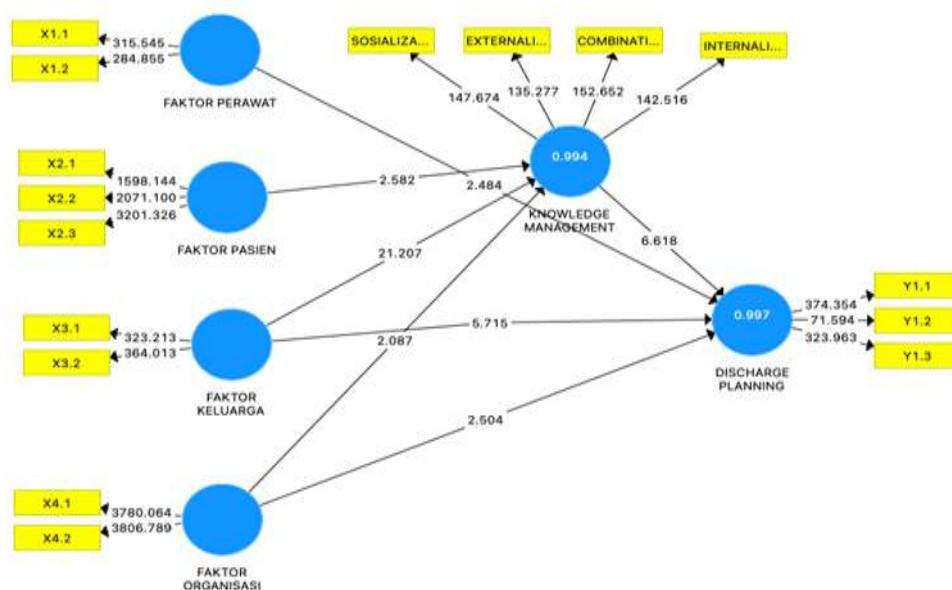
Conclusion: The research findings prove that nurse factors, patient factors, family factors, and organizational factors influence discharge planning based on the SECI knowledge management model.

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GRAPHICAL ABSTRACT



Introduction

The stroke prevalence is expected to increase significantly in the next few years at a productive age [1]. Post Stroke Disorder conditions that occur in stroke patients include 85% Hemiparase, 70% motor disorder, 50% dysphagia, 30% recurrent stroke, and 25% experiencing depression emotional disorder, so that it can change aspects of life after stroke [2]. Improving clinical conditions can be done by planning a comprehensive nursing care process, aiming to determine appropriate actions so as to minimize the stroke severity using discharge planning [3]. Recurrent stroke occurs in 5% during the first week, 1.15-15% within one month, 7.0%-20.6% within one year, 16.2%-35.3% within five years, and 14%-51.3% within ten years [4].

The problem phenomenon that occurs is discharge planning is only done when the patient is planning to go home and it is found that the discharge planning format is not suitable in the Professional Nursing Care Model (MAKP), 36% of nurses have not carried out discharge planning; 56% of the implementation of discharge planning has not been carried out in a structured manner and according to the patient's needs; 84% of nurses do not yet have a Learning Program Unit (SAP) in carrying out discharge planning and 24% of nurses say that learning media are

inadequate, causing obstacles in carrying out good discharge planning [5]. The effective discharge planning includes comprehensive information about the patient's needs, statements of nursing diagnoses, and plans to ensure that the patient's needs align with what the healthcare provider does [6, 7]. This is consistent with a literature review conducted in New York, which found that compliance with discharge planning policies was low, at 23% [8]. Discharge planning focuses on assessing and identifying the patient's needs as a facilitator of the client's transition from one environment to another, which can be identified as a hospital, nursing home, client's home, or family member's home [9].

Findings of gaps between nurses and patients in terms of conveying information and absorbing knowledge, including understanding patient information that is not appropriate, lack of time, urgent needs to be handled, shift work that forces patients to return before accurate health assessments, and nurses not knowing enough patients holistically [10].

Based on research by Krook, 2020, it was illustrated that there are deficiencies in the discharge planning process related to communication and delivery of provided information and wrong perceptions arise regarding discharge planning directives to

patients. The provision of health education to patients on the day of discharge was not fully carried out by nurses due to many factors and conditions, thus allowing miscommunication to arise between patients or families [10]. Nursing factors include suboptimal nursing services in terms of methods and time, poor collaboration and communication among healthcare personnel, and methods of information delivery [11].

The most common obstacles to discharge planning are patient factors, social message family factors, nurse factors, and hospital organizational factors [12]. The knowledge management approach that will be used in carrying out discharge planning is a knowledge management development from Nonaka and Takeuchi's (1995) concept called the SECI Model. The SECI model emphasizes the conversion process of conveying knowledge through socialization, externalization, combination, and internalization processes. The new finding of this research is to form the most effective and efficient modification of the SECI knowledge management-based discharge planning development model for stroke patients.

Materials and Methods

This analytic study with a cross-sectional design was carried out through one-time observation at the same time, without providing intervention to the variables studied. It was carried out in 3 hospitals in Jombang Regency; namely, Jombang Hospital, Ploso Hospital, and Jombang Hospital from October 2022- December 2022. The study population consisted of 268 nurses. Then used cluster sampling to determine the number of samples, obtained from 133 stroke unit nurses. 133 nurses who met these inclusion criteria were invited to complete several questionnaires.

The variables of this study consisted of nurse factors, patient factors, family factors, organizational factors (independent variables), discharge planning (dependent variable), and knowledge management SECI model (intervening variable). The instrument for collecting data is a questionnaire. Before the respondents filled out the questionnaire, the researcher gave a Pre-Research Explanation (PSP). After that, the

respondent was given an informed consent form to fill in to express his willingness to become a respondent in this study. The data that has been collected is processed and analysed using Structural Equation Modelling (SEM) based on variance called Partial Least Squares (SEM-PLS). The sampling technique in this study used cluster sampling (sample area). This research technique is used in two stages; namely, the initial stage determines the sample in the area or region and the next stage is to randomly determine the people in the area.

The variables of this study consisted of exogenous variables (X); namely, nurse factors, patient factors, family factors, and organizational factors; the endogenous variable is discharge planning (Y), and the mediating variable is knowledge management SECI model (Z). The research instrument used for data collection is a questionnaire. Data processing in this study was analysed descriptively and inferentially. Descriptive analysis was carried out through a frequency distribution consisting of the measured aspects, while inferential analysis in this study used SEM based on Partial Least Squares.

Results and Discussion

The number of respondents in this study was 133 stroke unit nurses in three Jombang Hospitals. The results of this study present data on the characteristics of respondents and tables of variable frequency distributions and the results of their analysis. Table 1 lists the characteristics of the sample of this study; namely, 133 nurses who took part in this study, and shows the results of the distribution of demographic characteristics of the 133 nurses, most were female, aged between 21-40 years old, last education diploma 3 in nursing, length of service 6 -> 10 years, and permanent employment status.

This shows that most nurses are at their productive age, able to adapt to change, have good problem solving, and are experienced with a Diploma 3 educational background so that it is very possible to develop and absorb new knowledge, skills, and changes. The service period is related to the experience that midwives

have while carrying out their duties and responsibilities because they are considered to have experience in carrying out their duties properly. In the next stage, the data were analyzed using SEM-PLS with two tests; namely, testing the measurement model (outer model) and testing the structural model (inner model).

Measurement model (Outer model)

The measurement model (the outer model) is used to test the validity and reliability of the

model. The first test for the outer model is convergent validity. In Table 2, the results of the convergent validity test show that sixteen indicators representing the variables are declared valid or meet convergent validity because they have an outer loading value of >0.7. The next test is that all variables have an Average Variance Extracted (AVE) value of more than 0.5, meaning that a set of variables is valid. The measurement model (the outer model) is the initial step to determine the level of validity and reliability.

Table 1: Characteristics of respondents

Indicator	Category	Frequency	
		Total	%
Gender	Male	38	26,9
	Female	95	73,1
TOTAL		133	100
Age (years)	21-40	80	59,2
	>40	53	40,8
TOTAL		133	100
Education	Diploma 3	78	60
	Bachelor & profession	55	40
TOTAL		133	100
Length of work	1-5 years	28	20,7
	6 - 10 years	53	40
	>10 years	52	39,3
TOTAL		133	100
Employment status	Permanent employee	105	78,4
	Non-Permanent employee	28	21,6
TOTAL		133	100

Table 2: Convergent testing of construct validity

Variable	Indicator	Construct Validity	
		Outer Loading	AVE
(X1) Nurse factor	Nursing services	0.991	0.982
	Medical collaboration	0.991	
(X2) Patient factor	Depression	0.997	0.995
	Anxious	0.997	
	Fear	0.999	
(X3) Family factor	Social support	0.991	0.982
	Role model	0.991	
(X4) Organization factor	Hospital Policy	0.999	0.998
	Infrastructure support	0.999	
(Z1) Knowledge management SECI	Socialization	0.970	0.942
	Externalization	0.970	
	Combination	0.971	
	Internalization	0.971	
(Y1) Discharge planning	When the patient is MRS	0.987	0.947
	While being treated	0.946	
	When KRS patients KRS	0.986	

Table 3: Reliability test results

Variable	Reliability	
	Composite reliability	Cronbach alpha
(X1) Nursing Factor	0,991 /	0,972
(X2) Patient factor	0,998/	0,982
(X3) Family factor	0,991 /	0,998
(X4) Organization factor	0,999 /	0,998
(Z1) Knowledge management SECI	0,985 /	0,982
(Y1) Discharge planning	0,982/	0,979

Table 4: Value of coefficient of determination (R square)

Construct	R ²	Q ²
Discharge Planning	93,6%	0,963

Convergent validity convergent testing occurs if it has a loading factor value (outer loading) which shows a value of > 0.7 , which means that the indicator is valid to explain this factor. Thus, the AVE value > 0.5 explains the validity of construct indicator.

Based on Table 2, all variables have an outer loading value of >0.7 , which means that all the indicators above are valid. The AVE value of all constructs > 0.5 means that the construct is declared valid. The final stage of testing the outer model is a reliability test by looking at composite reliability and Cronbach's alpha in Table 3. Based on Table 3, this indicates that the value of composite reliability > 0.7 means that all constructs in the measurement model (outer fashion) are declared reliable. The reference value for composite reliability is 0.6–0.7 and Cronbach's alpha is >0.7 . The stages of testing the model (outer model) that has been carried out are declared valid and reliable and testing the structural model (inner model) is carried out.

Structural model stage (Inner Model)

The structural model (the inner model) is a specification of the relationship between latent variables based on the substance of the researcher. Table 4 presents the value of the coefficient of determination (R square). The test results show that the value of R square (R²) means that Discharge Planning is based on the SECI knowledge management model of 93.6%. This means that 93.6% of discharge planning can be explained by nurse factors, patient factors, family factors, and organizational factors with

SECI knowledge management as mediation, and the rest is explained by other things. Besides looking at the R² value, the model is further evaluated by looking at Q². The Q² value of 0.963 (more than 0). This shows that the Discharge Planning modelling has strong predictive relevance, where the model used can explain the information in the study by 96.3%.

Table 5 demonstrates that nurse factors influence discharge planning (p-value = 0.014 and T statistic = 2.484), so it means that there is a significant influence between nurse factors on discharge planning. Patient factors influence knowledge management (p-value = 0.011 and T statistic = 2.582), so there is a significant influence between patient factors on knowledge management.

Family factors influence knowledge management and discharge planning (p-value = 0.000 and T statistic = 21.207), so there is a significant influence between family factors on knowledge management and discharge planning. Organizational factors influence knowledge management and discharge planning (p-value = 0.039 and 0.013 and T statistic = 2.504) which means that there is a significant influence between organizational factors on knowledge management and discharge planning.

Knowledge management affects discharge planning (p-value = 0.000 and T statistic = 6.618) which means that there is a significant effect between knowledge management on discharge planning.

The conclusion of the path test shows that the best path is family factors (social support and role model) related to discharge planning through SECI knowledge management as

evidenced by the highest statistical T value. These results are further explained in the path diagram in Figure 1.

Table 5: Testing direct and indirect effects

No.	Causality Relations	Original Sample	T-Statistics	P-value
1	(X1) Nursing factor → (Y1) Discharge planning	0,115	2,484	0,014
2	(X2) Patient factor → (X5) Knowledge Management	0,336	2,582	0,011
3	(X3) Family factor → (X5) Knowledge Management	0,448	21,207	0,000
4	(X3) Family factor → (Y1) Discharge planning	0,633	5,715	0,000
5	(X4) Organization factor → (X5) Knowledge Management	0,242	2,087	0,039
6	(X4) Organization factor → (Y1) Discharge planning	0,041	2,504	0,013
7	(X5) Knowledge Management → (Y1) Discharge planning	0,707	6,618	0,000

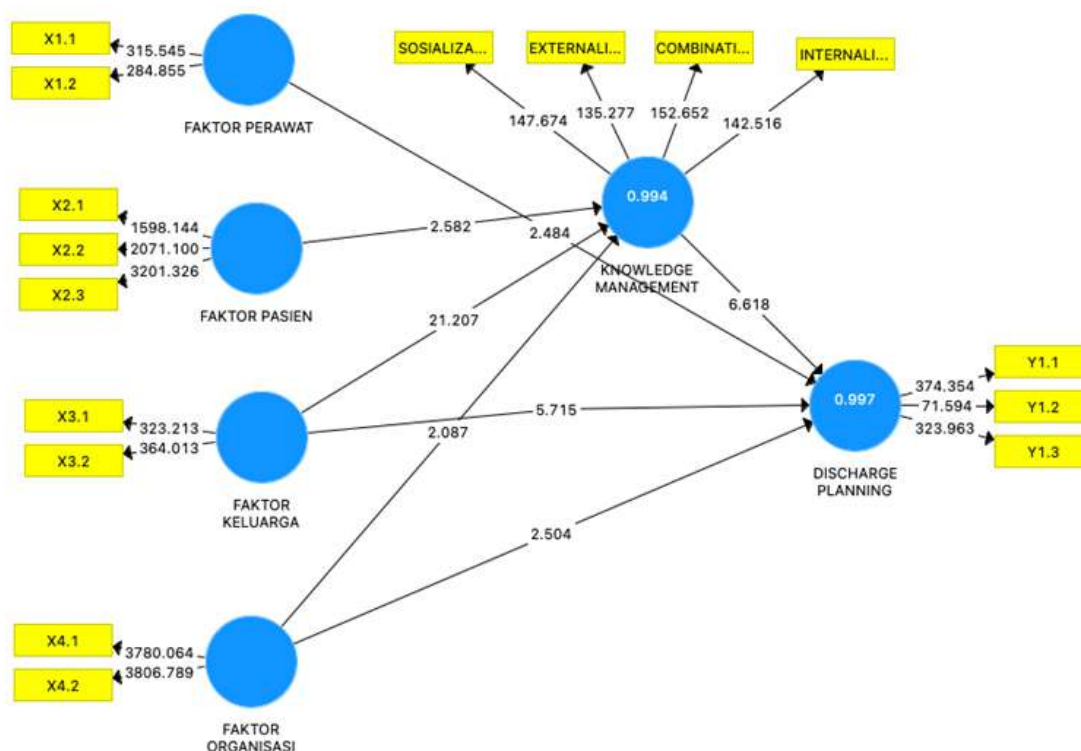


Figure 1: Discharge planning path diagram based on Knowledge management SECI model

Researchers found the results of the structural equation model showed that nurse factors (nursing services and medical collaboration) affected discharge planning, patient factors (anxiety, depression, and fear) had an effect on

knowledge management SECI Model, family factors (social support and role models) had an effect on discharge planning through the SECI knowledge management model, organizational factors (hospital policies and infrastructure

support) affect discharge planning through the SECI knowledge management model, and knowledge management SECI model influences discharge planning.

Based on research conducted by [13] entitled: "Managing Knowledge In Organizations: A Nonaka's SECI Model Operationalization" states that the SECI model can be applied to organizational systems in channeling knowledge and information from one person to another, it can be classified into 2 sides; namely, operational and strategic [13]. Knowledge management is used as an effort to maintain, analyze, organize, improve, and share understanding and experience [14]. SECI knowledge conversion namely: Socialization, Externalization, Combination, and Internalization. Conveying knowledge can be through 2 ways of conversion; namely, tacit and explicit [15]. The transfer of tacit knowledge to become explicit knowledge is done by information technology, shadowing, and problem solving [16].

Nursing services can be in the form of nurse motivation and how communicate. Nurse motivation is the nurse's desire to encourage patients to recover. The communication method aims to build a relationship of trust and cooperation between nurses and health service users to improve the clinical condition of stroke patients [17]. Nurses can reach the stages of carrying out discharge planning based on the Knowledge Management SECI Model and can be mentioned to have good knowledge and skills so as to reduce LOS (length of stay) in stroke patients [18].

The communication method is further closely related to the implementation of discharge planning, the better the communication, the better the implementation of discharge planning through acceptance and addition of patient and family knowledge.

Collaboration is needed between medical personnel; namely, doctors, nurses, nutritionists, medical rehab, and pharmacists to realize comprehensive and holistic care from various disciplines [19]. The aspect of medical collaboration that needs to be developed is the treatment which includes not only pharmacology, but also non-pharmacology and independent

nursing interventions. The flow of clients entering from home to home involves several professional care providers who focus on patients; namely, the involvement and empowerment of patients and families by the DPJP as the leader of the PPA (professional care provider) team, where PPA works as an interdisciplinary team with inter-professional collaboration, PPA (clinical pathways) care guidelines integrated, algorithms, protocols, procedures, integrated patient development notes, standing orders, integrated nutritional care, and patient service managers [20]. Collaboration and a combination of evaluation, process innovation, and health team communication involving inter-professionals can reduce recurrence and the number of emergency room visits [21].

The mental condition of stroke patients is a continuing problem after a stroke. Mental health after a stroke is complex, and research findings emphasize the importance of adopting a broad approach to the assessment and management of psychosocial interventions [22]. There is a relationship between the patient's factors in discharge planning and the patient's level of anxiety, fear, and depression, the more they participate the lower the perception level of negative feelings within themselves [23]. Another study conducted by [17] mentioned that information and anxiety can be related to each other because the information will form a positive mindset which will minimize good psychological impacts. Lack of information can increase anxiety, fear, and depression in patients. To reduce the negative psychological impact, nurses can provide adequate education and information regarding disease explanations, goals, risk processes, complications, available treatment alternatives, and administrative processes to patients. If more complete information is obtained, the patient's level of anxiety and depression will be decreased [24].

Family support is very important in changing patient behavior, social support is a source of coping that affects situations considered as stressful and cause people who are stressed to be able to change situations, change the meaning of situations or change their emotional reactions to

existing situations [25]. People with social support believe they are loved, valued, and part of a social network. Social attachment and long-standing relationships with others are accepted as aspects of the emotional satisfaction in life [26].

The family factor approach is associated with reduced length of stay, hospital costs, and reduced rates of medical errors and deaths. It is further associated with increased patient and family cooperation and compliance, improved quality of care and clinical outcomes, and increased levels of satisfaction among healthcare professionals, patients, and families. Such care uses resources wisely, effectively, and ethically by changing the healthcare culture from physician-centered to the team-, patient-, and family-centered [27].

The success of discharge planning measures ensures that patients are able to carry out safe and realistic follow-up discharge planning directions after leaving the hospital with the help of the family as the nearest unit and reduce readmissions [28]. Effective discharge planning includes comprehensive information about patient needs, nursing diagnosis statements, planning to ensure patient needs are in accordance with what is being done by health care providers [29]. Discharge planning is needed by the patient and should be centered on the patient's problems, namely preventive, therapeutic, rehabilitative, and actual routine care [30].

The organizational structure and policies determine who will carry out the tasks according to organizational principles so that the organization can be referred to as the whole process of selecting nurses in discharge planning and allocating facilities and infrastructure to support discharge planning implementation tasks. Hospital policy in terms of continuity of post-hospital care will be successful if discharge planning is carried out integrated, which plays a very important role in the implementation of discharge planning [19]. Organizational commitment has an important urgency in moving people to work. Commitment strengthening strategy is a strategy to encourage the HR performance from within, so that motivation,

desire, and attachment to the organization are always present so that individuals can try to change behavior according to organizational goals and follow the policies that apply in that organization [31].

The process of channeling knowledge management knowledge through socialization, externalization, combination, and internalization influences the implementation of discharge planning. Socialization arises because of the activity of sharing and creating knowledge about discount planning based on the nurse's previous experience with education and training so that changing tacit knowledge through joint activities. Sharing and creating knowledge is a part of knowledge management. All of this knowledge is tacit, and then becomes explicit through externalization by disclosing and translating it into media, SOPs, books, manuals, reports, and so on so that it can be published and easily understood by fellow nurses as a form of knowledge-sharing.

This knowledge is disseminated through combinations and implemented internalization by learning while working or carrying out learning by doing simulations [32]. At this stage, there is an increase in knowledge of human resources. Sources of explicit knowledge can be obtained through organizational database media, circulars or decrees, bulletin boards, and the internet and the mass media as external sources. Content management functions as a support for the combination process and facilitates the internalization process.

The implementation of discharge planning based on the Knowledge management SECI model is proven to be better, as evidenced by nurses being able to carry out discharge planning based on Knowledge management SECI properly at the MRS stage, during treatment and KRS so that the patient's condition is better, reducing LOS occurs and improving clinical conditions

Conclusion

Based on this study, it can be concluded that there is an influence of nurse factors (nursing services and collaboration of health workers) on discharge planning, patient factors (fear, anxiety,

and depression) on Knowledge management SECI Model, family factors (social support and role models), and organizational factors (policy of hospitals and infrastructure support) on discharge planning through SECI knowledge management model and there is the influence of SECI Knowledge management model of the process stages of socialization (through maintaining belief, knowing, and being with), externalization (through doing for), combination (through enabling and doing for) and internalization (through maintaining belief and enabling) towards discharge planning. These results are expected to improve clinical conditions, shorten LOS, and readmission of stroke patients.

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Authors' contributions

All authors contributed to data analysis, drafting, and revising of the paper and agreed to be responsible for all the aspects of this work.

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